

sprinklers or perforated pipes located in hazardous rooms where volatile and inflammable liquids are in use. So far as is known none of these systems has as yet been called upon to extinguish a fire, but there appears to be no reason why such a system should not provide excellent protection in special cases. In such systems it would be necessary to consider the safety of the workmen and furnish ready means of escape, since carbon tetrachloride is an anesthetic and where thoroughly sprayed through the air as from an automatic sprinkler it would probably produce rapid results.

The nature and effect of the fumes given off when carbon tetrachloride is thrown upon a fire is a subject which has received a great deal of discussion. When the liquid comes in contact with a fire the vapor is partly decomposed resulting in the evolution of a considerable quantity of black smoke which is undoubtedly finely divided carbon. Pungent gases are also produced which appear to be mostly hydrochloric acid with possibly a small amount of chlorine. Since carbon tetrachloride contains no hydrogen from which hydrochloric acid could be formed this substance must be produced by the action of chlorine on the gases arising from the burning material or upon the moisture of the air.

The fumes of carbon tetrachloride although of a very pungent nature do not produce any permanent injury under ordinary conditions where the operator can make his escape after he has inhaled all that he can stand, but they are a distinct handicap in fighting a fire and are one of the objectionable features to carbon tetrachloride as a general fire extinguishing agent. In large rooms or where a small quantity of carbon tetrachloride is sufficient to extinguish a fire the gases are of course less objectionable.

Mr. Barrier concludes his paper with the consideration of the method of extinguishing fires in oils and volatile liquids, recently proposed and experimented, e.g., the use of frothy mixtures. He considers the idea as a favorable one, the tests thus far reported having indicated satisfactory and promising results. The principle of this process the writer shows to be by causing two liquids to mix in a tank where foam is produced, by making the tank air-tight and then forcing the foam out by carbon dioxide under pressure and conveying it to the fire by means of a line of hose. However, no experiments have, as far as is known, been conducted in this country; and German scientists have not disclosed the exact nature of the liquids used. Yet, Mr. Barrier concluded with the statement that this method of extinguishing fires in oils and volatile liquids will undoubtedly prove to be by far the most efficient of any that has as yet been suggested.

NATIONAL ASSOCIATION OF PURCHASING AGENTS.

This new organization was formed in New York City on October 16th. Its membership will include purchasing agents and buyers representing some of the largest industrial corporations, railroads, steamship lines, street railways, gas and electric companies in New York, New Jersey, and Connecticut. The association has already a membership exceeding one hundred. H. T. Leeming, of Thos. A. Edison, Inc., is President, and E. B. Hendricks is Secretary-Treasurer.

The double-track electric railroad which is being built between Tokyo and Yokohama will be the most up-to-date in the Orient when finished early next year.

RAILWAYS AND MOTOR TRACTION.

THE following extracts from a paper by Mr. W. W. Hoy, general manager of South African Railways, read at the recent conference in London (Eng.) on motor traction, will be of interest in showing the possibilities of freight service to districts which, under ordinary conditions, would not have a railway line laid for many years.

In the course of his remarks, Mr. Hoy stated that the progress that has been made in constructing and perfecting road motor vehicles has been keenly followed by the South African Railway authorities, and the use of motor transport is regarded as a system especially suited to South African conditions, and should prove of great value for developing outlying districts sufficiently until the traffic offering justifies the construction of a line of railways, when the motor vehicles would be available for use in the development of other districts.

Attention was drawn to the fact that the South African railways are state-owned and motor services as feeders to the railways can be worked as branch services, the organization being as far as possible on railway lines.

Mr. Hoy pointed out how at one depot the postmaster controlled the motor staff and running details of service, whilst at others, duties were performed by the station master, thus ensuring economy.

As regards the most suitable type of vehicles, Mr. Hoy said, speaking generally, he was of opinion that for cross country freight traffic, powerful paraffin tractors with large and wide wheels would be most suitable. In most cases rubber-tired vehicles for heavy goods traffic could not be regarded as a practical proposition where transport had, in some cases, to be done at the rate of 4d. per ton per mile.

The average working costs for a paraffin tractor and trailers Mr. Hoy gave as follows:—

Average daily run (in miles), 15 to 30.

Average cost per car mile, including 20 per cent. depreciation, 4 per cent. interest, rent, insurance and supervision charges, 4s.

Cost per ton per mile, 5d.—3d. 15 to 30 miles.

Miles per gallon of fuel, 1.5 m. p.g.

Costing per car mile, 4s. 9d.

INCREASING PRODUCTION OF CEMENT.

According to the statistics contained in the report of Mr. J. McLeish on Economic Minerals and Mining Industries of Canada, the total production of cement in British Columbia in 1911 amounted to 401,000 bbls. valued at \$601,500; in 1912 to 511,539 bbls., valued at \$767,038; in Alberta for 1911 it amounted to 512,176 bbls. at a value of \$1,241,535, for 1912 to 821,165 bbls., at a value of \$1,775,898; in Ontario, for 1911, the production attained to 3,090,786 bbls., valued at \$3,741,039, for 1912 to 3,044,713 bbls., valued at \$3,372,897; and in Quebec, for 1911 the outlay was 1,614,730 bbls., worth \$1,963,439, while for 1912 it was 2,714,685 bbls., worth \$3,134,499. In each province is shown an increase in both production and the value thereof.

Eight years of labor and the expenditure of nearly \$30,000,000 had their fruition on November 4th, when the water of the Los Angeles aqueduct, drawn from the high Sierras, 260 miles eastward, was turned into the big San Bernardino reservoir, 23 miles north of the city. Caravans of automobiles took crowds out to the reservoir, which was the scene of the initial features of a two days' celebration.